

JOHNSON'S LAKESIDE LOTS (PWSNO 1090061) SOURCE WATER ASSESSMENT REPORT

January 14, 2003



State of Idaho Department of Environmental Quality

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SOURCE WATER ASSESSMENT FOR JOHNSON'S LAKESIDE LOTS

Under the Federal Safe Drinking Water Act Amendments of 1996, all states are required by the U.S. Environmental Protection Agency (EPA) to assess every source of public drinking water for its relative sensitivity to contaminants regulated by the Act. The Department of Environmental Quality is completing the assessments for all Idaho public drinking water systems. The assessment for your drinking water source is based on well construction characteristics; site specific sensitivity factors associated with the aquifer the water is drawn from; a land use inventory inside the well recharge zone; and water quality history. For non-community transient water systems like Johnson's Lakeside Lots, recharge zones were generally delineated as a 1000-foot fixed radius around the wells.

This report, *Source Water Assessment for Johnson's Lakeside Lots* describes factors used to assess the well's susceptibility to contamination. The analysis relies on information from the well log; an inventory of land use, well site characteristics, potential contaminant sites identified through a Geographic Information System database search; and information from the public water system file. The ground water susceptibility analysis worksheet for Johnson's Lakeside Lots is attached.

Taken into account with local knowledge and concerns, this assessment should be used as a planning tool to develop and implement appropriate protection measures for this system. **The results should not be used as an absolute measure of risk and are not intended to undermine the confidence in your water system.**

Well Construction. Drinking water for Johnson's Lakeside Lots comes from a 280 foot deep well drilled into a granite formation on the west side of Cocolalla Lake about 2 miles from Westmond, Idaho. The water system serves 2 year round and 11 seasonal homes.

The well was drilled in 1972, and except for a minor variation in casing wall thickness, meets current Idaho Department of Water Resources construction standards. The 6-inch casing and the clay surface seal terminate in granite 37 feet below ground. The remaining depth of the well is not lined. The static water level stands 6 feet below grade.

The Johnson's Lakeside Lots well was not in compliance with *Idaho Rules for Public Drinking Water Systems* when it was inspected in June 1998. The most serious deficiency was the presence of a septic tank 68 feet from the well. Under terms of a waiver granted the system by the Idaho Department of Environmental Quality, the tank was relocated further from the well, though still inside the usual sanitary setback zone.

Correspondence in the public water system file does indicate whether other problems noted during the sanitary survey have been remedied. At the time of the inspection the top of the casing was not watertight and properly vented. The well house needed extensive repairs including installation of a drained concrete floor. The pressure tank and gauge were not functioning.

Well Site Characteristics. Hydrologic sensitivity scores are derived from information on the well log and from the soil drainage classification inside the recharge zone delineated for your well. Soils in the well recharge zone for the Johnson's Lakeside Lots well are generally moderately to well drained. At the well site, one foot of topsoil and 9 feet of sand and gravel lie over bedrock. Permeable soils allow migration of contaminants toward the well. Water was first encountered 38 feet below the surface. Other factors being equal, a greater depth to ground water provides greater opportunity for potential contaminant attenuation through adsorption and other mechanisms.

Potential Contaminant Inventory. The 1000-foot buffer zone delineated for Johnson's Lakeside Lots covers an area that has been developed for recreational use. Most of the homes in the area are connected to Sandy Beach Resort sewer system. Several seasonal streams that feed Cocolalla Lake cross the area. Because the Johnson's Lakeside Lots well has been determined to be groundwater, surface water would not usually be counted as a significant potential source of contaminants in the source water assessment. In this case though, poor maintenance of the wellhead and well house increase the risk from surface runoff.

Table 1. Johnson's Lakeside Lots Potential Contaminant Inventory

Map ID	Site Description	Potential Contaminants*	Source of Information
1	Former Underground Fuel Storage Tank site	SOC, VOC	Underground Storage Tank Database
2	Wastewater Land Application Site	IOC, Microbial	Wastewater Land Application Database
3	Ephemeral Streams	Microbial	Geological Survey Maps
4	Septic Tanks and Drainfield	IOC, Microbial	Public Water System File

*SOC = Synthetic Organic Chemicals. VOC = Volatile Organic Chemicals. IOC = Inorganic Chemicals.

Water Quality History. In the period from May 1998 through April 2002, two quarterly samples from the Johnson's Lakeside Lots well tested positive for total coliform bacteria. Follow up tests were negative. Nitrate samples from 1999 through 2002 show concentrations ranging between 0.078 and 0.095 mg/l. The Maximum Contaminant Level (MCL) for nitrate is 10 mg/l.

Susceptibility to Contamination. An analysis of the Johnson's Lakeside Lots well, incorporating information from the public water system file and the potential contaminant inventory, ranked the well moderately susceptible to all classes of regulated contaminants. Risk factors related to local geology account for most points marked against the well in the final susceptibility scores. The complete analysis worksheet for your well is on page 6 of this report. Formulas used to compute final scores and susceptibility rankings are at the bottom of the worksheet.

Source Water Protection. This assessment should be used as a basis for determining appropriate new protection measures or re-evaluating existing protection efforts. No matter what ranking a source receives, protection is always important. Whether the source is currently located in a “pristine” area or an area with numerous industrial and/or agricultural land uses, the way to ensure good water quality in the future is to act now to protect valuable water supply resources.

Continuing to operate and maintain the well in compliance with *Idaho Rules for Public Drinking Water Systems* should be the primary drinking water protection strategy for Johnson's Lakeside Lots. The system has done a good job in adhering to the required testing schedule since the last sanitary survey, and has fulfilled conditions of the septic tank setback waiver it was granted in 2001. The well itself appears to be soundly constructed, so protecting it and the ground water it draws from by attending to repairs on a regular basis makes good economic sense.

Every system should develop an emergency response plan. There is a simple fill-in-the-blanks form available on the DEQ website ([http:// www.deq.state.id.us/water/water1.htm](http://www.deq.state.id.us/water/water1.htm)) to guide systems through the emergency planning process. Drinking water protection partnerships with neighboring landowners should also be established. Some of them may not be aware that their property is in a sensitive area where household, maintenance or business practices could have a negative impact on water quality for the whole community.

The system should also investigate ground water protection programs like Home*A*Syst. These programs are designed to help well owners assess everyday activities for their potential impact on drinking water quality. Topics include septic tank management, petroleum product storage, handling and storing lawn and household chemicals and similar activities. Due to the time involved with the movement of ground water, drinking water protection activities should be aimed at long-term management strategies even though these strategies may not yield results in the near term.

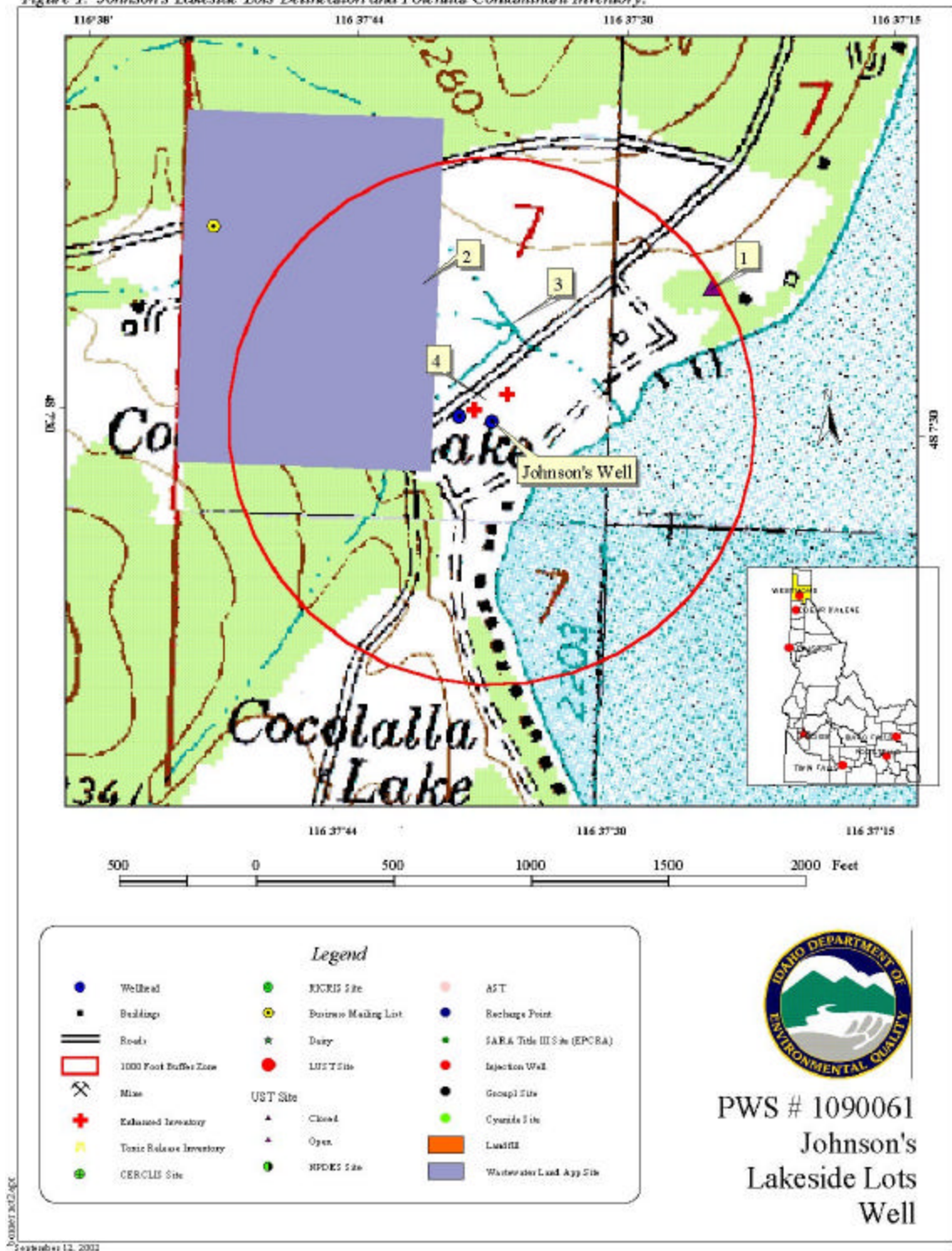
Assistance. Public water suppliers and users may call the following IDEQ offices with questions about this assessment and to request help with drinking water protection planning.

Coeur d'Alene Regional DEQ Office (208) 769-1422

State IDEQ Office (208) 373-0502

Website: [http:// www.deq.state.id.us/water/water1.htm](http://www.deq.state.id.us/water/water1.htm)

Figure 1. Johnson's Lakeside Lots Delineation and Potential Contaminant Inventory.



Source: M&E, Inc.

September 12, 2002

Ground Water Susceptibility

Public Water System Name :

JOHNSONS LAKESIDE LOTS

Well :

WELL #1

Public Water System Number :

1090061

9/12/02 11:22:44 AM

1. System Construction		SCORE			
Drill Date	11/7/72				
Driller Log Available	YES				
Sanitary Survey (if yes, indicate date of last survey)	YES 1998				
Well meets IDWR construction standards	YES	0			
Wellhead and surface seal maintained	NO	1			
Casing and annular seal extend to low permeability unit	YES	0			
Highest production 100 feet below static water level	NO	1			
Well protected from surface runoff	NO	1			
Total System Construction Score		3			
2. Hydrologic Sensitivity					
Soils are poorly to moderately drained	NO	2			
Vadose zone composed of gravel, fractured rock or unknown	NO	0			
Depth to first water > 300 feet	NO	1			
Aquitard present with > 50 feet cumulative thickness	NO	2			
Total Hydrologic Score		5			
3. Potential Contaminant / Land Use -		IOC	VOC	SOC	Microbial
		Score	Score	Score	Score
Land Use 1000-Foot Buffer	RESIDENTIAL	2	2	2	2
Farm chemical use high	NO	0	0	0	
IOC, VOC, SOC, or Microbial sources in Sanitary Setback	SEPTIC TANK WAIVER GRANTED	NO	NO	NO	NO
Total Potential Contaminant Source/Land Use Score - Near Well		2	2	2	2
Potential Contaminant / Land Use - 1000-Foot Buffer					
Contaminant sources present (Number of Sources)	YES	2	1	1	3
(Score = # Sources X 2) 8 Points Maximum		4	2	2	6
Sources of Class II or III leacheable contaminants or Microbials	YES	2	1	1	
4 Points Maximum		2	1	1	
Zone 1B contains or intercepts a Group 1 Area	NO	0	0	0	0
Agricultural Land	Less Than 25% Agricultural Land	0	0	0	0
Total Potential Contaminant Source / Land Use Score - 1000-Foot Buffer		6	3	3	6
Cumulative Potential Contaminant / Land Use Score		8	5	5	8
4. Final Susceptibility Source Score		10	9	9	11
5. Final Well Ranking		Moderate	Moderate	Moderate	Moderate

The final scores for the susceptibility analysis were determined using the following formulas:

- 1) VOC/SOC/IOC Final Score = Hydrologic Sensitivity + System Construction + (Potential Contaminant/Land Use x 0.27)
- 2) Microbial Final Score = Hydrologic Sensitivity + System Construction + (Potential Contaminant/Land Use x 0.35)

Final Susceptibility Ranking:

- 0 - 5 Low Susceptibility
 6 - 12 Moderate Susceptibility
 > 13 High Susceptibility

POTENTIAL CONTAMINANT INVENTORY LIST OF ACRONYMS AND DEFINITIONS

AST (Aboveground Storage Tanks) – Sites with aboveground storage tanks.

Business Mailing List – This list contains potential contaminant sites identified through a yellow pages database search of standard industry codes (SIC).

CERCLIS – This includes sites considered for listing under the **Comprehensive Environmental Response Compensation and Liability Act (CERCLA)**. CERCLA, more commonly known as Superfund is designed to clean up hazardous waste sites that are on the national priority list (NPL).

Cyanide Site – DEQ permitted and known historical sites/facilities using cyanide.

Dairy – Sites included in the primary contaminant source inventory represent those facilities regulated by Idaho State Department of Agriculture (ISDA) and may range from a few head to several thousand head of milking cows.

Deep Injection Well – Injection wells regulated under the Idaho Department of Water Resources generally for the disposal of stormwater runoff or agricultural field drainage.

Enhanced Inventory – Enhanced inventory locations are potential contaminant source sites added by the water system. These can include new sites not captured during the primary contaminant inventory, or corrected locations for sites not properly located during the primary contaminant inventory. Enhanced inventory sites can also include miscellaneous sites added by the Idaho Department of Environmental Quality (DEQ) during the primary contaminant inventory.

Floodplain – This is a coverage of the 100year floodplains.

Group 1 Sites – These are sites that show elevated levels of contaminants and are not within the priority one areas.

Inorganic Priority Area – Priority one areas where greater than 25% of the wells/springs show constituents higher than primary standards or other health standards.

Landfill – Areas of open and closed municipal and non-municipal landfills.

LUST (Leaking Underground Storage Tank) – Potential contaminant source sites associated with leaking underground storage tanks as regulated under RCRA.

Mines and Quarries – Mines and quarries permitted through the Idaho Department of Lands.)

Nitrate Priority Area – Area where greater than 25% of wells/springs show nitrate values above 5mg/l.

NPDES (National Pollutant Discharge Elimination System) – Sites with NPDES permits. The Clean Water Act requires that any discharge of a pollutant to waters of the United States from a point source must be authorized by an NPDES permit.

Organic Priority Areas – These are any areas where greater than 25 % of wells/springs show levels greater than 1% of the primary standard or other health standards.

Recharge Point – This includes active, proposed, and possible recharge sites on the Snake River Plain.

RICRIS – Site regulated under **Resource Conservation Recovery Act (RCRA)**. RCRA is commonly associated with the cradle to grave management approach for generation, storage, and disposal of hazardous wastes.

SARA Tier II (Superfund Amendments and Reauthorization Act Tier II Facilities) – These sites store certain types and amounts of hazardous materials and must be identified under the Community Right to Know Act.

Toxic Release Inventory (TRI) – The toxic release inventory list was developed as part of the Emergency Planning and Community Right to Know (Community Right to Know) Act passed in 1986. The Community Right to Know Act requires the reporting of any release of a chemical found on the TRI list.

UST (Underground Storage Tank) – Potential contaminant source sites associated with underground storage tanks regulated as regulated under RCRA.

Wastewater Land Applications Sites – These are areas where the land application of municipal or industrial wastewater is permitted by DEQ.

Wellheads – These are drinking water well locations regulated under the Safe Drinking Water Act. They are not treated as potential contaminant sources.

NOTE: Many of the potential contaminant sources were located using a geocoding program where mailing addresses are used to locate a facility. Field verification of potential contaminant sources is an important element of an enhanced inventory.

Where possible, a list of potential contaminant sites unable to be located with geocoding will be provided to water systems to determine if the potential contaminant sources are located within the source water assessment area.